

Figure 1: A block diagram of one preferred system architecture

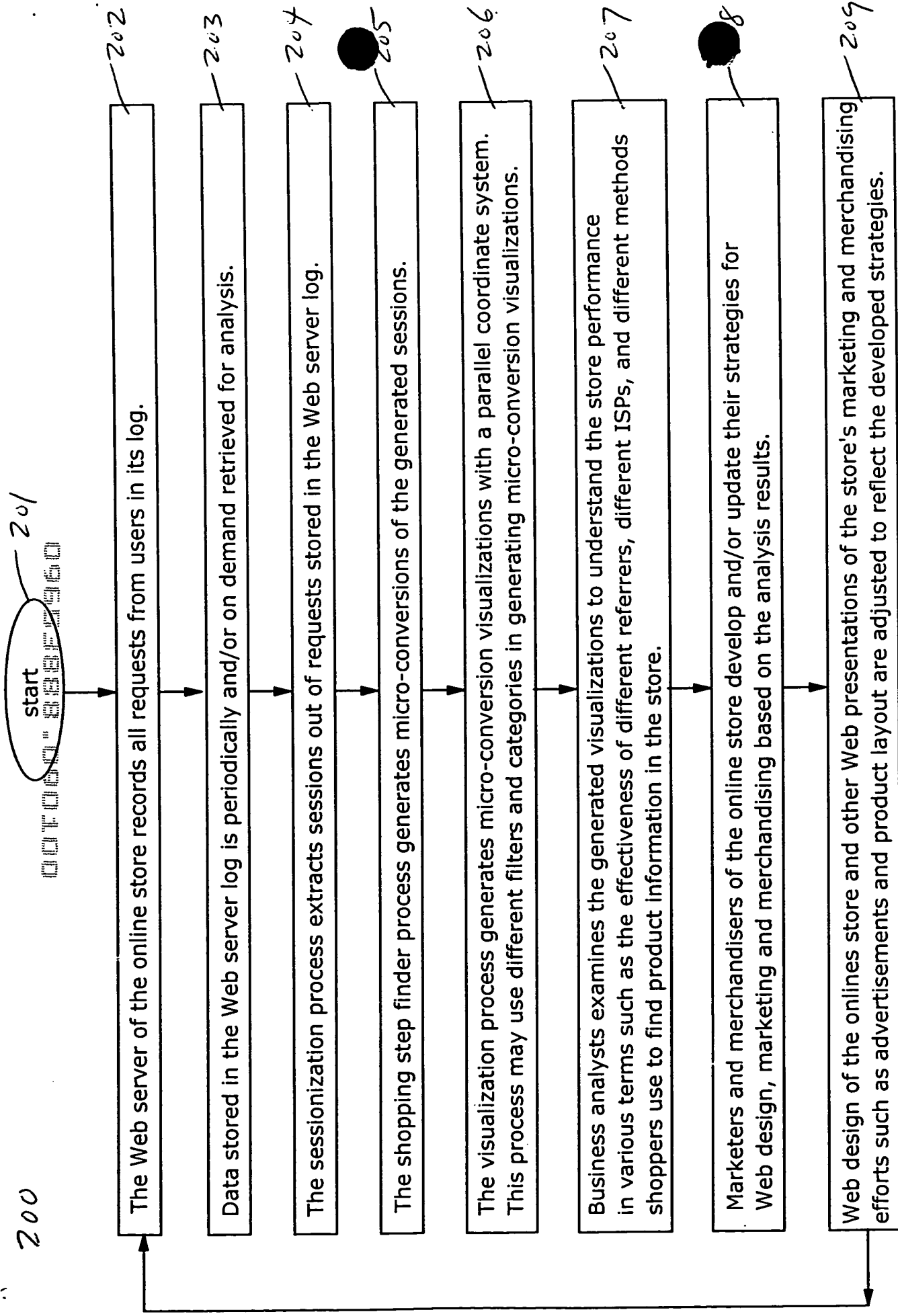


Figure 2: A flow chart of a preferred business process

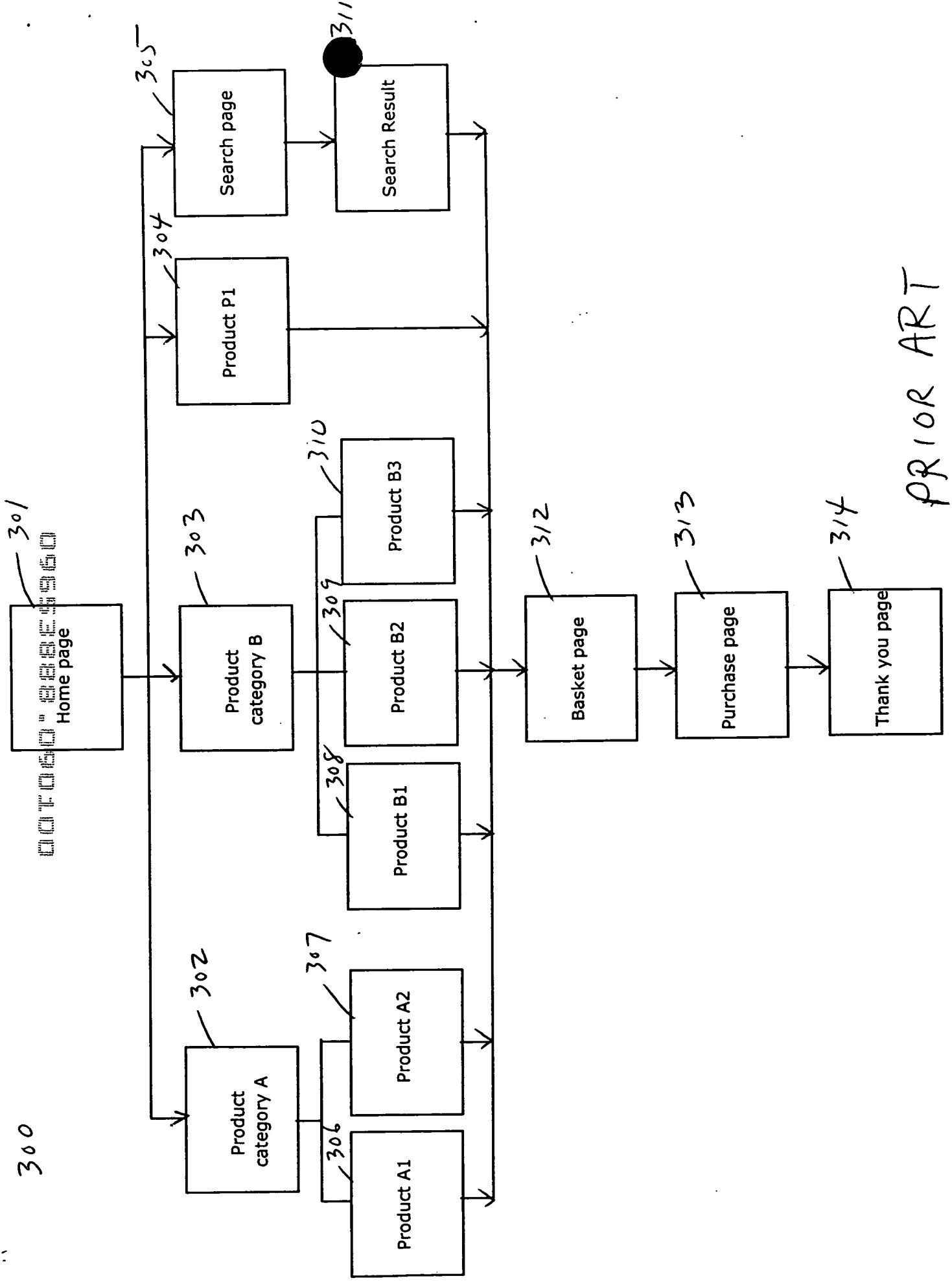


Figure 3: An example of an online store structure

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 class 100

| Timestamp | Session ID | Referrer | Current Page | Links |
|-----------|------------|---------------|---------------|------------------|
| T1 | S1 | R1 | Home | A, B, P1, Search |
| T2 | S2 | R2 | Home | A, B, P1, Search |
| T3 | S1 | Home | A | A1, A2 |
| T4 | S3 | R3 | Home | A, B, P1, Search |
| T5 | S2 | Home | Search | |
| T6 | S1 | A | A1 | Basket, A |
| T7 | S3 | Home | P1 | Basket |
| T8 | S1 | A1 | Basket | Purchase, Home |
| T9 | S2 | Search | Search Result | A2, B1, B2 |
| T10 | S1 | Basket | Home | A, B, P1, Search |
| T11 | S2 | Search Result | B1 | Basket, B |
| T12 | S1 | Home | B | B1, B2, B3 |
| T13 | S1 | B | B2 | Basket, B |
| T14 | S1 | B2 | B | B1, B2, B3 |
| T15 | S2 | B1 | Basket | Purchase, Home |
| T16 | S1 | B | B3 | Basket, B |
| T17 | S2 | Basket | Purchase | Thank You |
| T18 | S3 | P1 | Home | A, B, P1, Search |
| T19 | S1 | B3 | Basket | Purchase, Home |
| T20 | S1 | Basket | Purchase | Thank You |
| T21 | S1 | Purchase | Thank You | Home |
| T22 | S3 | Home | A | A1, A2 |
| T23 | S2 | Purchase | Thank You | Home |

Figure 4: An example of a Web server log of an online store

504 505 506 507 508 500

| Timestamp | Session ID | Referrer | Current Page | Links |
|-----------|------------|----------|--------------|------------------|
| T1 | S1 | Home | Home | A, B, P1, Search |
| T3 | S1 | Home | A | A1, A2 |
| T6 | S1 | A | A1 | Basket, A |
| T8 | S1 | A1 | Basket | Purchase, Home |
| T10 | S1 | Basket | Home | A, B, P1, Search |
| T12 | S1 | Home | B | B1, B2, B3 |
| T13 | S1 | B | B2 | Basket, B |
| T14 | S1 | B2 | B | B1, B2, B3 |
| T16 | S1 | B | B3 | Basket, B |
| T19 | S1 | B3 | Basket | Purchase, Home |
| T20 | S1 | Basket | Purchase | Thank You |
| T21 | S1 | Purchase | Thank You | Home |

(a) Session S1 — 501

| Timestamp | Session ID | Referrer | Current Page | Links |
|-----------|------------|---------------|---------------|------------------|
| T2 | S2 | R2 | Home | A, B, P1, Search |
| T5 | S2 | Home | Search | |
| T9 | S2 | Search | Search Result | A2, B1, B2 |
| T11 | S2 | Search Result | B1 | Basket, B |
| T15 | S2 | B1 | Basket | Purchase, Home |
| T17 | S2 | Basket | Purchase | Thank You |
| T23 | S2 | Purchase | Thank You | Home |

(b) Session S2 — 502

| Timestamp | Session ID | Referrer | Current Page | Links |
|-----------|------------|----------|--------------|------------------|
| T4 | S3 | R3 | Home | A, B, P1, Search |
| T7 | S3 | Home | P1 | Basket |
| T18 | S3 | P1 | Home | A, B, P1, Search |
| T22 | S3 | Home | A | A1, A2 |

(c) Session S3 — 503

Figure 5: An example of sessions in an online store

604

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607

| Product impressions | Clickthroughs | Basket placement | Purchase |
|---------------------|---------------|------------------|----------|
| T1, P1 | T6, A1 | T8, A1 | T20, A1 |
| T3, A1 | T13, B2 | T19, B3 | T20, B3 |
| T3, A2 | T16, B3 | | |
| T10, P1 | | | |
| T12, B1 | | | |
| T12, B2 | | | |
| T12, B3 | | | |
| T14, B1 | | | |
| T14, B2 | | | |
| T14, B3 | | | |

(a) Micro-conversions of session S1 — 601

| Product impressions | Clickthroughs | Basket placement | Purchase |
|---------------------|---------------|------------------|----------|
| T2, P1 | T11, B1 | T15, B1 | T17, B1 |
| T9, A2 | | | |
| T9, B1 | | | |
| T9, B2 | | | |

(b) Micro-conversions of session S2 — 602

| Product impressions | Clickthroughs | Basket placement | Purchase |
|---------------------|---------------|------------------|----------|
| T4, P1 | T7, P1 | | |
| T18, P1 | | | |
| T22, A1 | | | |
| T22, A2 | | | |

(c) Micro-conversions of session S3 — 603

Figure 6: An example of micro-conversions in an online store

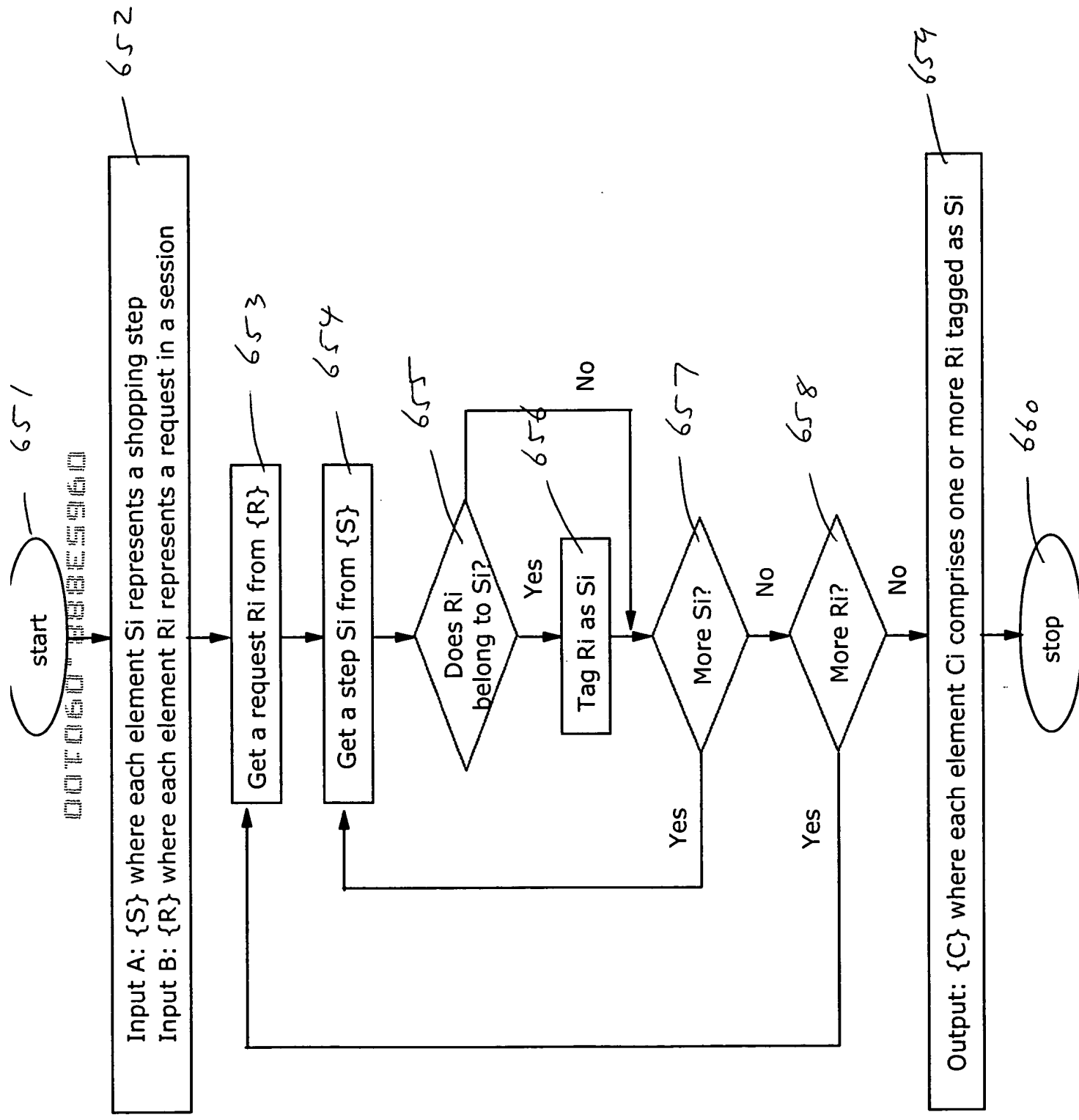
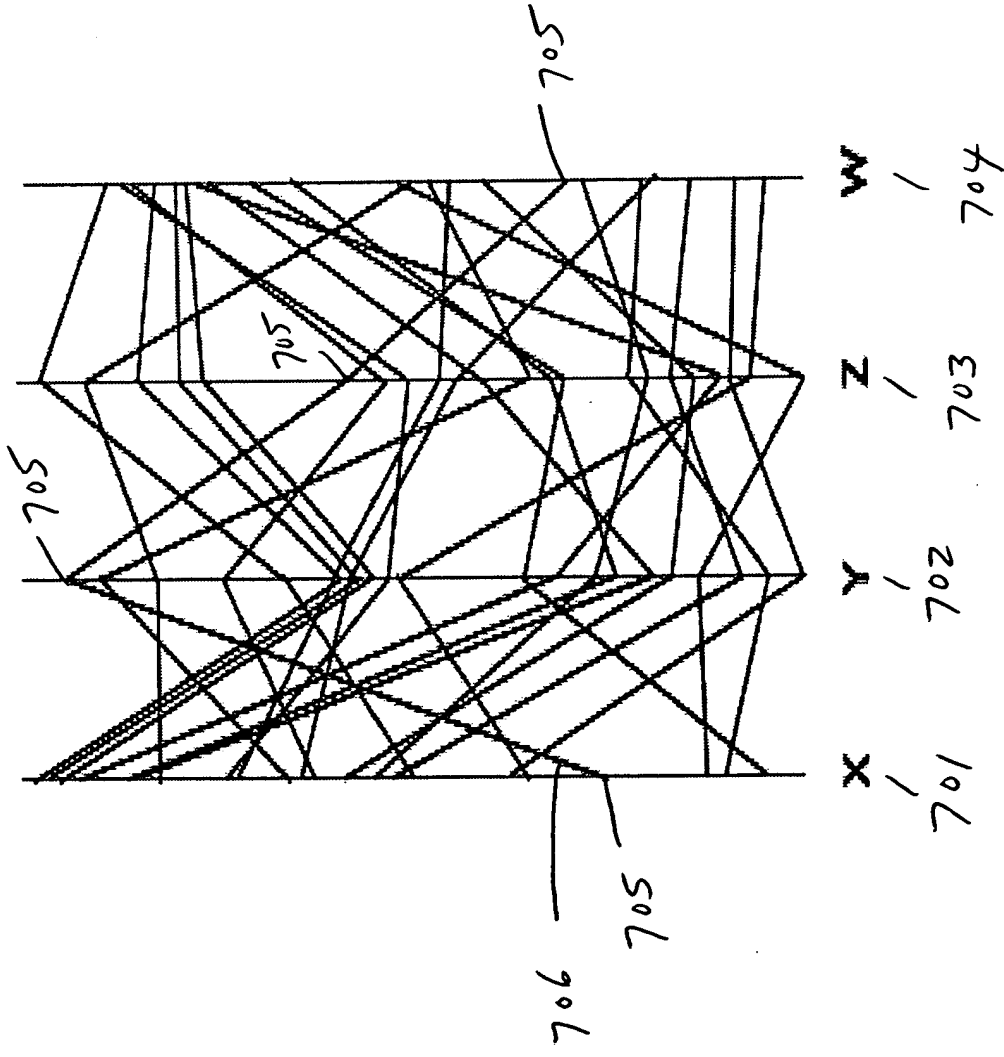


Figure 6A: A flow chart of a shopping step finder process

700



Prior Art

Figure 7: An example of a traditional parallel coordinate system

800

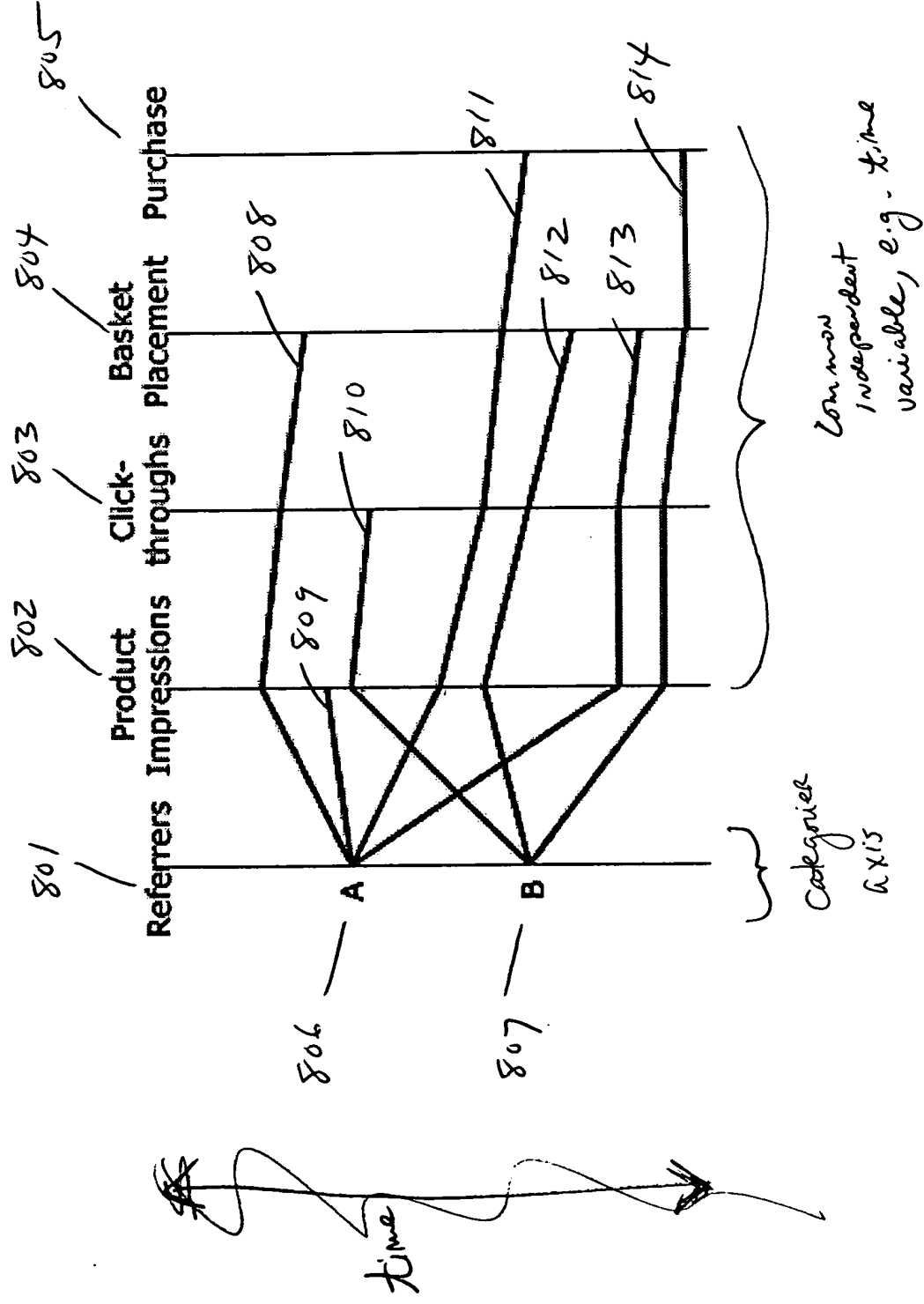


Figure 8: An example of a micro-conversion visualization with a parallel coordinate system

900

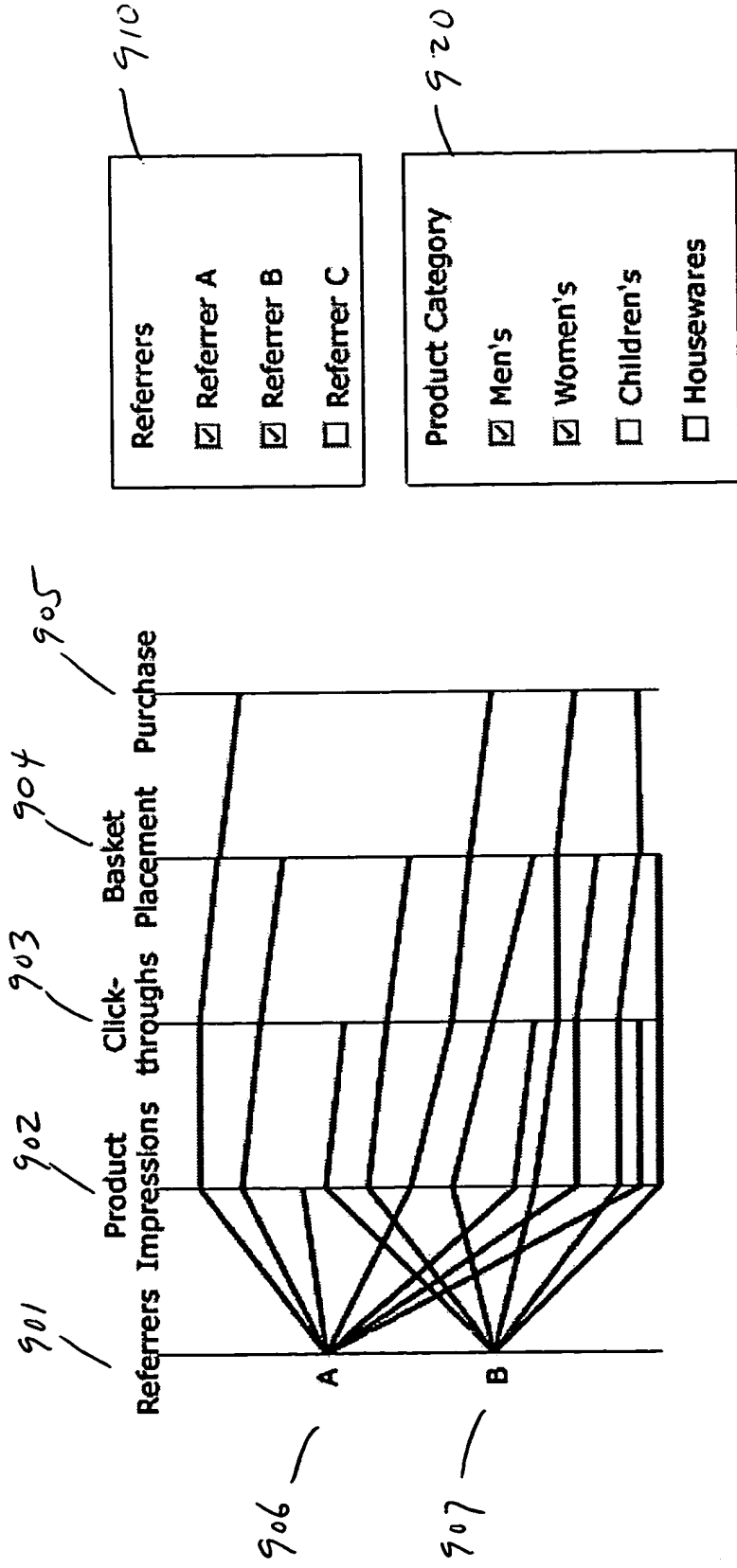


Figure 9: An example of a micro-conversion visualization with filters

1000

00T060" 88E5960

1001

1002

1003

1004

1005

1006

| Timestamp | Session ID | Store | Referrer | Current Page | Links |
|-----------|------------|-------|----------------|----------------|--------------------|
| T4 | S3 | ST1 | R3 | Home | A, B, P1, Search |
| T7 | S3 | ST1 | Home | P1 | Basket |
| T18 | S3 | ST1 | P1 | Home | A, B, P1, Search |
| T22 | S3 | ST1 | Home | A | A1, A2 |
| T23 | S3 | ST2 | ST1 | Home | B, C, D, Search |
| T24 | S3 | ST2 | Home | Search | |
| T25 | S3 | ST2 | Search | Search Results | C2, C3, D1 |
| T26 | S3 | ST2 | Search Results | C2 | Basket, C |
| T27 | S3 | ST2 | C2 | Search Results | C2, C3, D1 |
| T28 | S3 | ST2 | Search Results | C3 | Basket, C |
| T29 | S3 | ST3 | ST2 | Home | A, B, C, D, Search |
| T30 | S3 | ST3 | Home | Search | |
| T31 | S3 | ST3 | Search | Search Results | A1, B1, C3, D2 |
| T32 | S3 | ST3 | Search Results | D2 | Basket, D |
| T33 | S3 | ST3 | D2 | Basket | Purchase, Home |
| T34 | S3 | ST3 | Basket | Home | A, B, C, D, Search |
| T35 | S3 | ST3 | Home | D | D1, D2, D3 |
| T36 | S3 | ST3 | D | D3 | Basket, D |
| T37 | S3 | ST3 | D3 | Basket | Purchase, Home |
| T38 | S3 | ST3 | Basket | Purchase | Thank You |
| T39 | S3 | ST3 | Purchase | Thank You | Home |

Figure 10: An example of a session browsing more than one online stores

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DOTD "8885950"

1101

1102

1103

1104

| Product impressions | Clickthroughs | Basket placement | Purchase |
|---------------------|---------------|------------------|--------------|
| T4, P1, ST1 | T7, P1, ST1 | T33, D2, ST3 | T38, D2, ST3 |
| T18, P1, ST1 | T26, C2, ST2 | T37, D3, ST3 | T38, D3, ST3 |
| T22, A1, ST1 | T28, C3, ST2 | | |
| T22, A2, ST1 | T32, D2, ST3 | | |
| T25, C1, ST2 | T36, D3, ST3 | | |
| T25, C3, ST2 | | | |
| T25, D1, ST2 | | | |
| T27, C2, ST2 | | | |
| T27, C3, ST2 | | | |
| T27, D1, ST2 | | | |
| T31, A1, ST3 | | | |
| T31, B1, ST3 | | | |
| T31, C3, ST3 | | | |
| T31, D2, ST3 | | | |
| T35, D1, ST3 | | | |
| T35, D2, ST3 | | | |
| T35, D3, ST3 | | | |

Figure 11: An example of micro-conversions of a session browsing more than one online stores

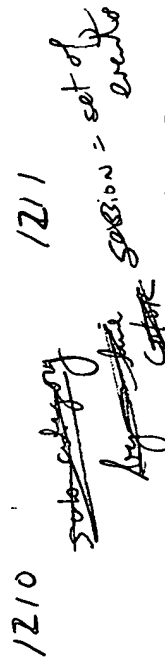
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Figure 12: An example of visualizing shopping activities in more than one online stores